In the Claims

1. (Previously Presented) A method of MR imaging comprising the steps of:

partitioning k-space into a number of partitions, wherein the partitions incrementally increase in distance from a center of k-space;

applying magnetic preparation pulses and acquiring data in an elliptic centric acquisition order, such that a rate by which the magnetic preparation pulses are applied is a function of the incremental distance a partition of MR data is from the center of k-space; and

playing out a dummy acquisition following each of the magnetic preparation pulses.

2. (Original) The method of claim 1 wherein the magnetic preparation pulses are saturation pulses, and further comprising the step of decreasing the rate by which the saturation pulses are applied as the distance a partition of MR data is from the center of k-space increases.

3. (Cancelled)

4. (Previously Presented) The method of claim 1 further comprising the step of playing out the magnetic preparation pulses every N_i TR for an ith partition, wherein $N_1 < N_2 \ldots < N_{M-1} < N_M$, and M corresponds to the number of partitions, and wherein every N_i is a non-zero integer.

5. (Original) The method of claim 4 wherein the number of partitions includes three partitions for a given image acquisition, wherein N_i includes $N_1 < N_2$ and $N_2 < N_3$.

6. (Original) The method of claim 5 wherein the step of applying magnetic preparation pulses includes the step of playing out fat saturation pulses every five TRs for the first partition, every 15 TRs for the second partition, and every 40 TRs for the third partition.

7. (Original) The method of claim 1 further comprising the step of determining the number of partitions based on an FOV from which MR data is to be acquired.

8. (Original) The method of claim 7 further comprising the step of determining the number of partitions to minimize k-space discontinuity between adjacent k-space views.

9. (Original) The method of claim 1 wherein the magnetic preparation pulses are fat saturation pulses, and further comprising the step of maximizing fat saturation while minimizing differential weighting of k-space while acquiring central region k-space.

10. (Original) The method of claim 1 wherein the data acquisition in k-space includes a radial acquisition in k-space.

11. (Previously Presented) An MRI apparatus comprising:

a magnetic resonance imaging (MRI) system having a plurality of gradient coils positioned about a bore of a magnet to impress a polarizing magnetic field and an RF transceiver system and an RF switch controlled by a pulse module to transmit RF signals to an RF coil assembly to acquire MR images; and

a computer programmed to:

partition k-space into a number of partitions, each having an increased distance from a center of k-space;

apply magnetic preparation pulses at a first rate during data acquisition for a first radial partition; and

apply magnetic preparation pulses at a second rate, different from the first rate, during data acquisition for a second partition; and

play out a dummy acquisition following each of the magnetic preparation pulses.

12. (Previously Presented) The MRI apparatus of claim 11 wherein the first rate and second rate are a function of partition distance from the center of k-space.

13. (Previously Presented) The MRI apparatus of claim 11 wherein the first rate is greater than the second rate if the first radial partition is closer to the center of k-space than the second radial partition.

14. (Previously Presented) The MRI apparatus of claim 13 wherein the magnetic preparation pulse is a saturation pulse.

15. (Cancelled)

16. (Previously Presented) The MRI apparatus of claim 11 wherein the magnetic preparation pulses include at least one of a fat saturation pulse, an IR pulse, and a spatial saturation RF pulse.

17. (Previously Presented) The MRI apparatus of claim 11 wherein the computer is further programmed to determine dimensions of an FOV and, from the dimensions, determine a number of radial partitions such that discontinuities between adjacent k-space locations are reduced.

18. (Previously Presented) The MRI apparatus of claim 11 wherein the computer is programmed to carry out an elliptical centric phase order acquisition of MR data from at least one of a heart region and an abdominal region of a patient.

19. (Previously Presented) The MRI apparatus of claim 11 wherein the computer is programmed to partition k-space into partitions of similar size.

20. (Previously Presented) A computer readable storage medium having stored thereon a set of instructions that when executed by a computer causes the computer to:

partition k-space data into a number of partitions, each a given distance from a center of k-space;

play out a magnetic preparation pulse at a different rate for each partition, the rate being dependent on the given distance a partition is from the center of k-space;

acquire MR data in an elliptical centric order; and

play out a dummy acquisition following each of the magnetic preparation pulses.

21. (Previously Presented) The computer readable storage medium of claim 20 wherein each partition is centered about a center of k-space such that magnetic preparation occurs more frequently during MR data acquisition of a partition closer to the center of k-space than that of a partition farther from the center of k-space.

22. (Previously Presented) The computer readable storage medium of claim 21 wherein a rate of magnetic preparation pulses is non-zero for each partition.

23. (Previously Presented) The computer readable storage medium of claim 20 wherein the set of instructions further causes the computer to define boundaries of each partition and determine the number of partitions based on a k-space extent of a 3D image FOV.

24. (Previously Presented) The computer readable storage medium of claim 23 wherein the set of instructions further causes the computer to define the boundaries and the number of partitions such that k-space discontinuity between adjacent k-space views is reduced.

25. (Previously Presented) The computer readable storage medium of claim 20 wherein the rate for each partition is non-linearly dependent on the given distance a partition is from the center of k-space and wherein the set of instructions further causes the computer to play out a dummy acquisition following each magnetic preparation pulse and prior to data acquisition in each partition.